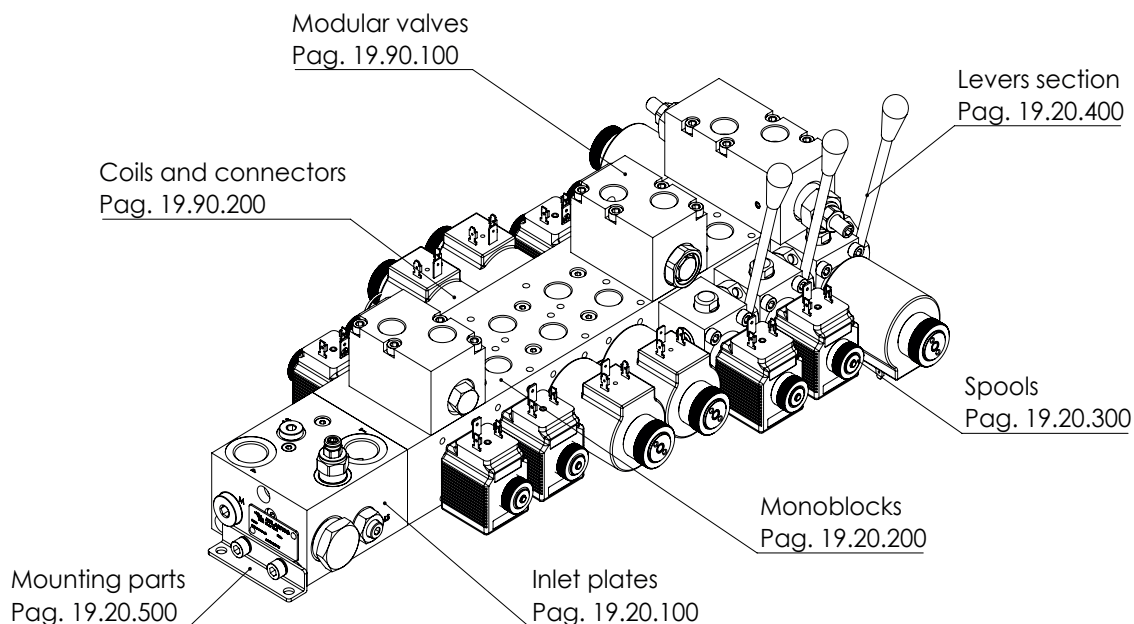


EBL series

MONOBLOCK LOAD SENSING VALVE ON-OFF OR PROPORTIONAL



FEATURES

- Compact dimensions
- Low weight
- Custom spools
- Custom inlet blocks
- LS line on each spool section
- Sandwich valves for extra functions
- Cast iron monoblock and aluminum inlet block for standard applications
- High resistance cast iron monoblock and steel inlet block for high pressure systems
- Optional levers for manual operation
- No leak risk between sections
- Spools not under rod tension
- Zinc plated/anodized components for corrosion resistance

SPECIFICATION \ DESCRIPTION

MAXIMUM OPERATING PRESSURE	Steel inlet block: 320 bar (4600 PSI) Aluminium inlet block: 210 bar (3000 PSI)
MAXIMUM TANK PRESSURE	20 bar (290 PSI)
RATED FLOW	030 series: 30 l/min 8 GPM 060 series: 60 l/min (16 GPM)
COIL POWER	030 series: 26 W 060 series: 33 W
VOLTAGE	12 Vdc, 24 V DC, others on request
COIL CONNECTOR	DIN43650, AMP Junior, Deutsch DT04-2P
PORTS	Inlet: G1/2", 1/2 JIS, 7/8-14 UNF-2B (SAE#10) Outlet: G3/8", 3/8 JIS, 3/4-16 UNF-2B (SAE#8)
OPERATING TEMPERATURE	NBR (ISO 1629) seals: -30,+100°C (-22,+212°F) FKM (ISO 1629) seals: -20,+200°C (-4,+392°F)
FILTRATION	ISO 4406:1999: class 19/17/14 NAS 1638: class 8
MOUNTING POSITION	No restrictions
MATERIAL	Spool body: cast iron Spool: Hardened and grounded steel Inlet block: Aluminium or steel
SURFACE TREATMENT	Steel: zinc plating Aluminium: anodization

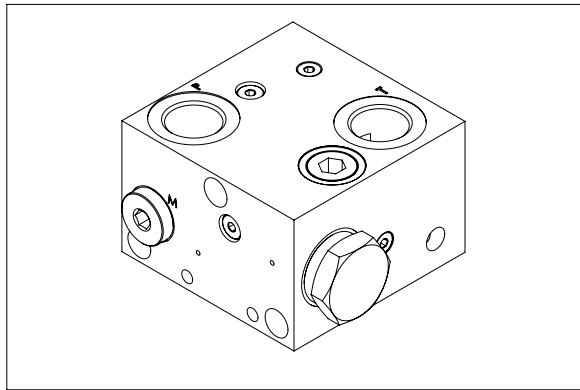
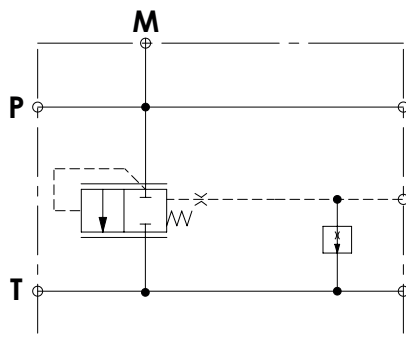
EBL series is a new directional load sensing valve that has innovative features in terms of performance, dimension, manufacturing reliability and customization. The valve consists in an inlet block flanged to a monoblock with spools. This construction gives the advantages of high flexibility in inlet block schemes, combined with the reliability and simplicity of monoblock spool valve construction, eliminating the risk of spools blocking due to overtightening of tie rods or the risk of leakage between sections. The spool monoblock is a 2 or 3 position, 4 ways, direct acting solenoid operated type. All sections have threaded ports at the top and removable plugs for tank connections to allow the installation of flanged blocks with additional functions like crossover reliefs, reliefs to tank, relief and anticavitations, counterbalance valves, P.O. checks, flow restrictors and flow regulators. All sections are equipped with standard push button override and they can be equipped with lever for manual use.

HOW ORDER IT

To order the separate parts please refer to each catalogue page.

To order an assembled block, contact AFT sales network specifying the part numbers following page 19.90.900 path.

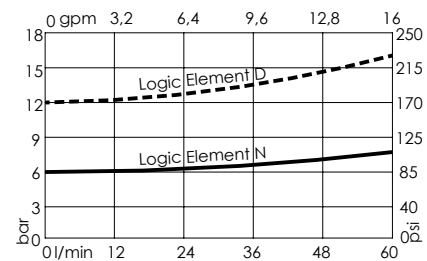
For special versions please contact AFT sales network.

SFLL-060-ZDNN-16P, T PORTS
M PORT**HYDRAULIC SCHEME**

This inlet section is equipped with two thread ports (P,T) available in two different types G 1/2" or 3/4"-16 UNF plus a third threaded port M for pressure measuring available in G 1/4" or 7/16"-20. The manifold material is aluminium for applications up to 210 bar (3000 psi) or zinc plated steel for applications up to 320 bar (4600 psi).

TECHNICAL DATA

Max pressure	210/320 bar (3000/4600 psi)
Rated flow	60 l/min (16 gpm)
Hydraulic fluid	Mineral oil DIN 51524
Fluid viscosity	10-500 mm ² /s (0,02-0,78 in ² /s)
Fluid temperature	-25°C/75°C (-13°F/167°F)
Environment temperature	-25°C/60°C (-13°F/140°F)
Weight	0,9 kg (2 lb)

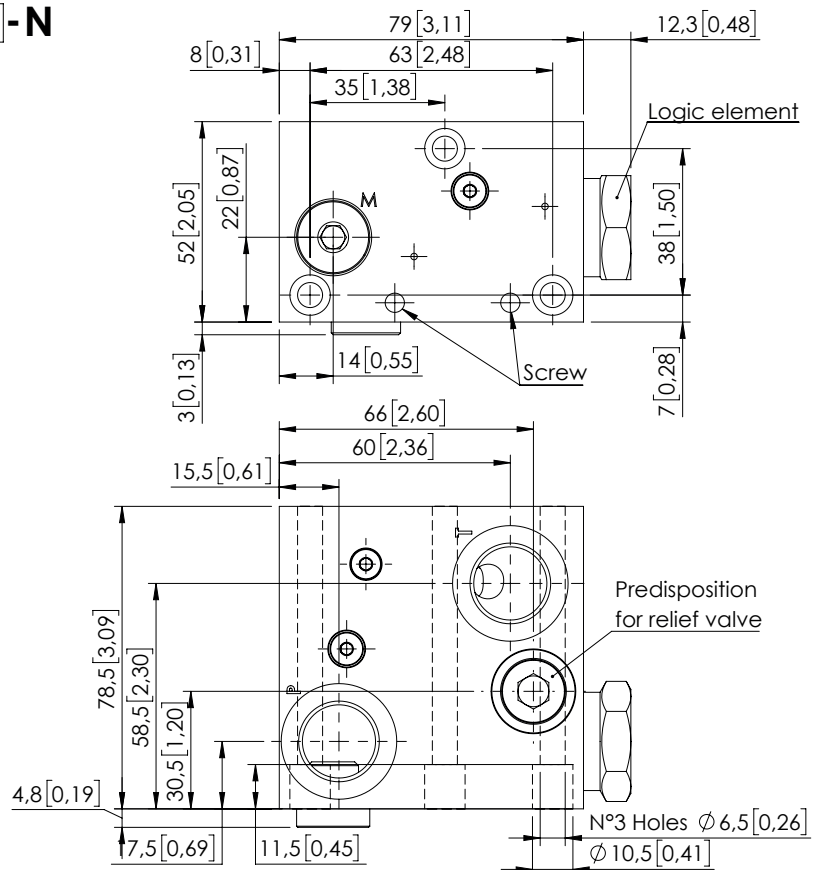
PRESSURE DROP LOGIC ELEMENT**ORDERING DETAILS: SEPARATE ELEMENTS****SFLL-060- * * NN-16- *** -N**

*	MATERIAL TYPE
A	Steel zinc-plated (320 bar/4600 psi)
Z	Aluminium anodized (210 bar/3000 psi)

*	LOGIC ELEMENT SPRING
D	Spring setting 12 bar (174 psi) (CD000103)
N	Spring setting 6 bar (87 psi) (CD000073)

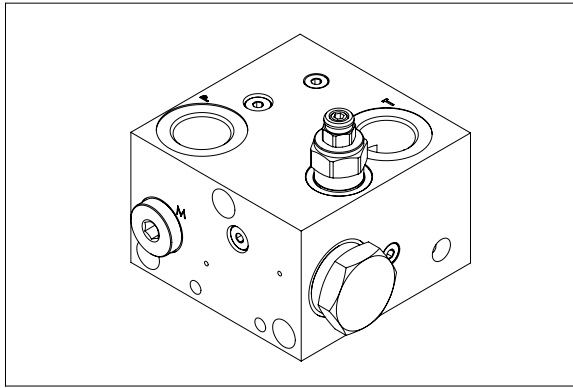
***	PORTS		
	P line	T line	M
G12	G 1/2"	G 1/2"	G 1/4"
U34	3/4"-16 UNF	3/4"-16 UNF	7/16"-20 UNF

QUICK CODE	
DESCRIPTION	CODE
SFLL-060-ZDNN-16-G12-N	SF000045

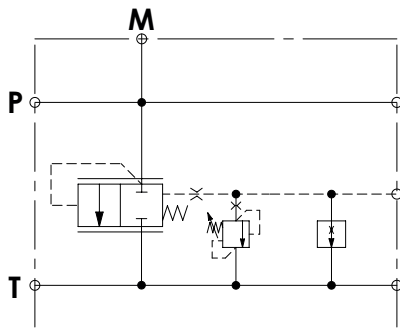
OVERALL DIMENSIONS

Dimensions: mm [inches]

SFLL-060-ZDNN-17

RELIEF VALVE
M PORT

HYDRAULIC SCHEME

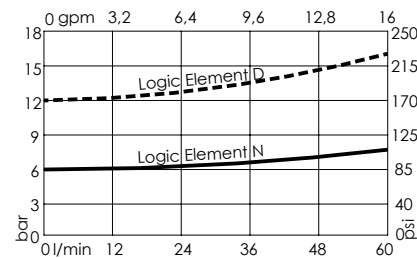


This inlet section is equipped with relief valve with adjustable setting operating on Ls signal, the adjustment is made by socket screw. This inlet section is equipped with two thread ports (P,T) available in two different types G 1/2" or 3/4"-16 UNF plus a third threaded port M for pressure measuring available in G 1/4" or 7/16"-20. The manifold material is aluminium for applications up to 210 bar (3000 psi) or zinc plated steel for applications up to 320 bar (4600 psi).

TECHNICAL DATA

Max pressure	210/320 bar (3000/4600 psi)
Rated flow	60 l/min (16 gpm)
Hydraulic fluid	Mineral oil DIN 51524
Fluid viscosity	10-500 mm ² /s (0,02-0,78 in ² /s)
Fluid temperature	-25°C/75°C (-13°F/167°F)
Environment temperature	-25°C/60°C (-13°F/140°F)
Weight	0,9 kg (2 lb)

PRESSURE DROP LOGIC ELEMENT



ORDERING DETAILS: SEPARATE ELEMENTS

SFLL-060-***N-17-***-N

*	MATERIAL TYPE
A	Steel zinc-plated (320/4600 bar)
Z	Aluminium anodized (210/3000 bar)

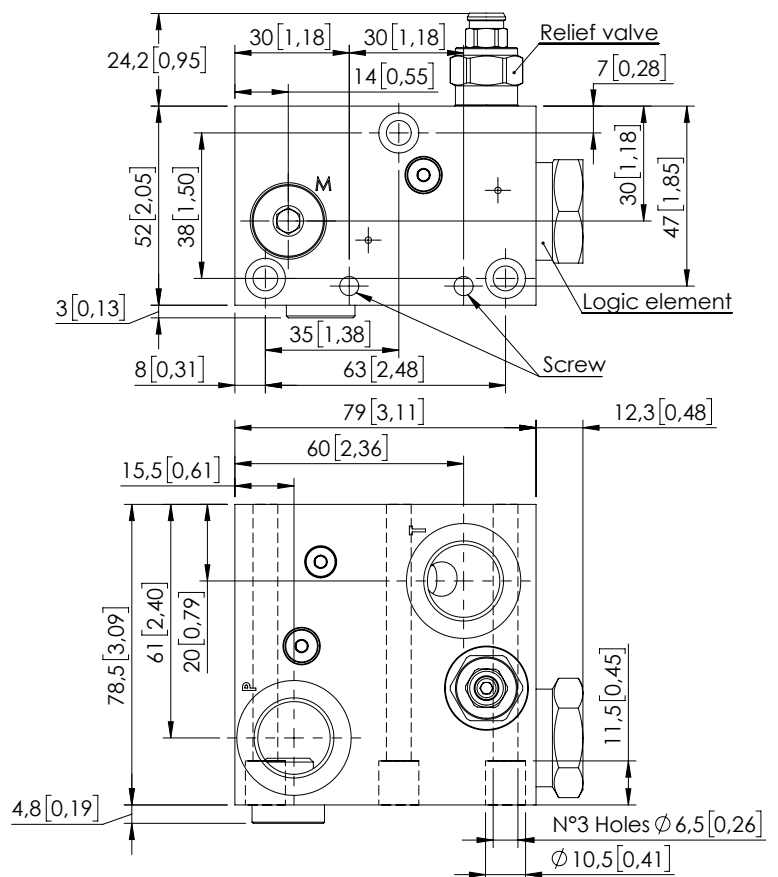
*	LOGIC ELEMENT SPRING
D	Spring setting 12 bar (174 psi) (CD000103)
N	Spring setting 6 bar (87 psi) (CD000073)

*	SETTING RANGE
N	Max setting 210 bar (3000 psi) (CP000029)
A	Max setting 110 bar (1600 psi) (CP000030)
B	Max setting 350 bar (5000 psi) (CP000002)

***	PORTS		
	P line	T line	M
G12	G 1/2"	G 1/2"	G 1/4"
U34	3/4"-16 UNF	3/4"-16 UNF	7/16"-20 UNF

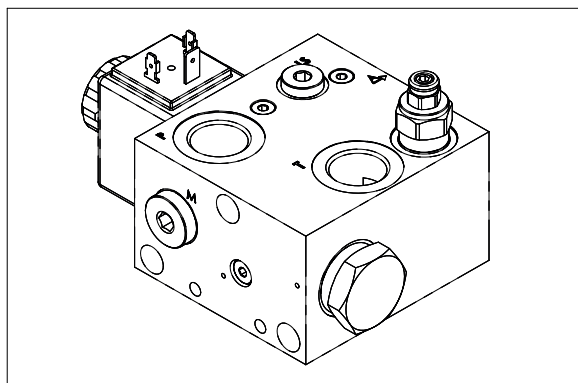
QUICK CODE	
DESCRIPTION	CODE
SFLL-060-ZDNN-17-G12-N	SF000010
SFLL-060-ZNNN-17-G12-N	SF000032

OVERALL DIMENSIONS

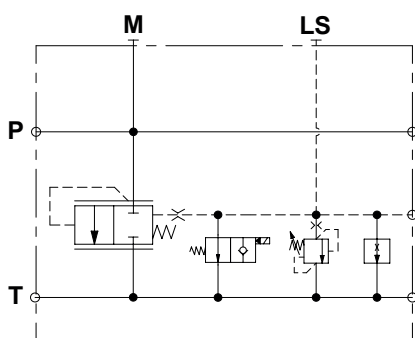


Dimensions: mm [inches]

SFLL-060-ZDNN-19

**RELIEF VALVE
UNLOADING VALVE**


HYDRAULIC SCHEME

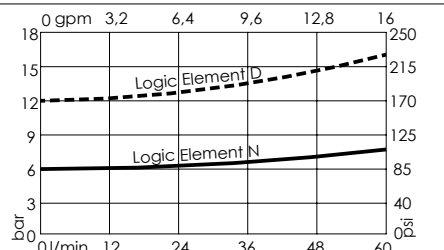


This inlet section is equipped with relief valve with adjustable setting operating on Ls signal, the adjustment is made by socket screw. It is present an unloading solenoid valve normally open with emergency operating on Ls signal. There are two thread ports (P, T) available in two different types G 1/2" or 3/4"-16 UNF plus M port available in G 1/4". Max inlet flow 60 l/min. The manifold material is aluminium for applications up to 210 bar (3000 psi) or zinc plated steel for applications up to 320 bar (4600 psi).

TECHNICAL DATA

Max pressure	210/320 bar (3000/4600 psi)
Rated flow	60 l/min (16 gpm)
Hydraulic fluid	Mineral oil DIN 51524
Fluid viscosity	10-500 mm ² /s (0,02-0,78 in ² /s)
Fluid temperature	-25°C/75°C (-13°F/167°F)
Environment temperature	-25°C/60°C (-13°F/140°F)
Weight	1,05 kg (2,3 lb)

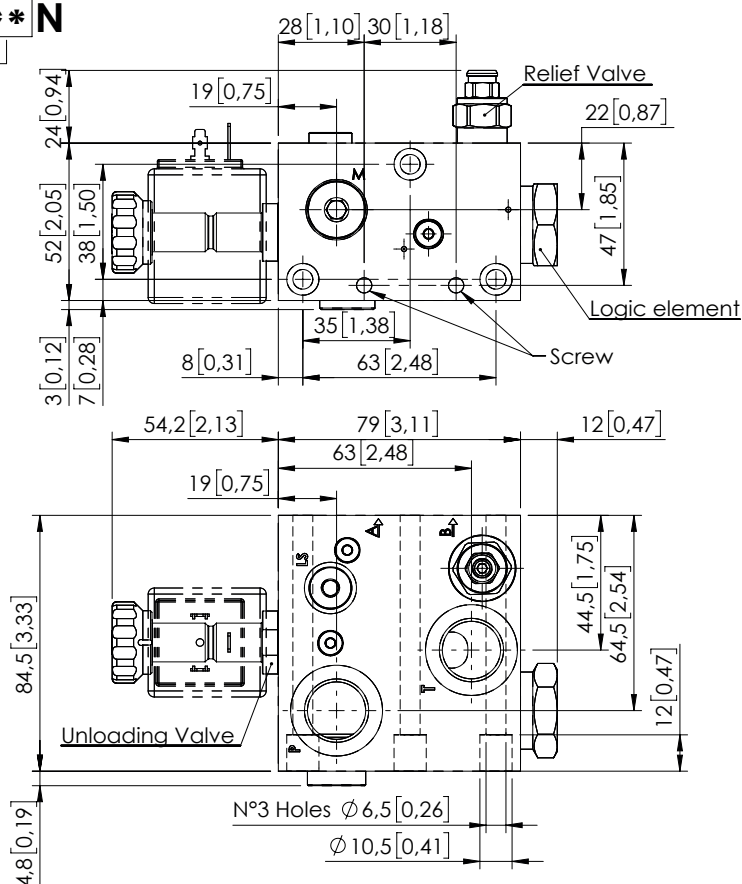
PRESSURE DROP LOGIC ELEMENT



ORDERING DETAILS: SEPARATE ELEMENTS

SFLL-060-*N-19-***-***N**

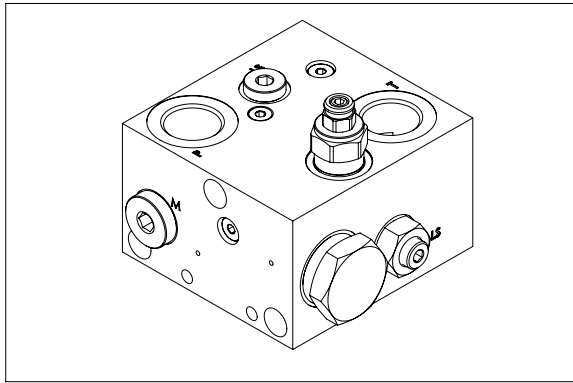
*	MATERIAL TYPE
A	Steel zinc-plated (320/4600 bar)
Z	Aluminium anodized (210/3000 bar)
*	LOGIC ELEMENT SPRING
D	Spring setting 12 bar (174 psi) (CD000103)
N	Spring setting 6 bar (87 psi) (CD000073)
*	SETTING RANGE
N	Max setting 210 bar (3000 psi) (CP000029)
A	Max setting 110 bar (1600 psi) (CP000030)
B	Max setting 350 bar (5000 psi) (CP000002)
***	PORTS
	P line T line M
G12	G 1/2" G 1/2" G 1/4"
U34	3/4"-16 UNF 3/4"-16 UNF 7/16"-20 UNF
*	VOLTAGE
	no coils
A	12 V DC
B	24 V DC
**	COILS TYPE
	no coils
HR	Hirshmann (ISO 4400 DIN 43650)
DT	Deutsch (DT04-2P)
AJ	Amp junior (AJ type)
	QUICK CODE
	DESCRIPTION CODE
	SFLL-060-ZDNN-19-G12-N SF000019
	Unloading Valve CE000873



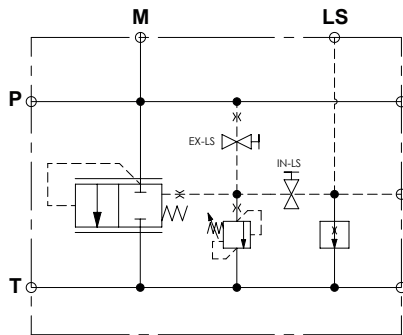
Dimensions: mm [inches]

SFLL-060-ZDNN-18

RELIEF VALVE
EXTERNAL OR INTERNAL LS



HYDRAULIC SCHEME

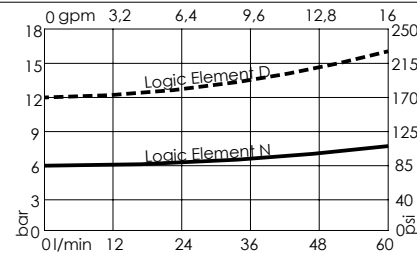


This inlet section is equipped with relief valve with adjustable setting operating on Ls signal, the adjustment is made by socket screw. It is present an unloading compensator normally closed operating with Ls signal. There are two thread ports (P, T) available in two different types G 1/2" or 3/4"-16 UNF plus M port available in G 1/4". Max inlet flow 60 l/min. The manifold material is aluminium for applications up to 210 bar (3000 psi) or zinc plated steel for applications up to 320 bar (4600 psi).

TECHNICAL DATA

Max pressure	210/320 bar (3000/4600 psi)
Rated flow	60 l/min (16 gpm)
Hydraulic fluid	Mineral oil DIN 51524
Fluid viscosity	10-500 mm ² /s (0,02-0,78 in ² /s)
Fluid temperature	-25°C/75°C (-13°F/167°F)
Environment temperature	-25°C/60°C (-13°F/140°F)
Weight	1,0 kg (2.3 lb)

PRESSURE DROP LOGIC ELEMENT



ORDERING DETAILS: SEPARATE ELEMENTS

SFLL-060-***N-18-***-N

*	MATERIAL TYPE
A	Steel zinc-plated (320/4600 bar)
Z	Aluminium anodized (210/3000 bar)

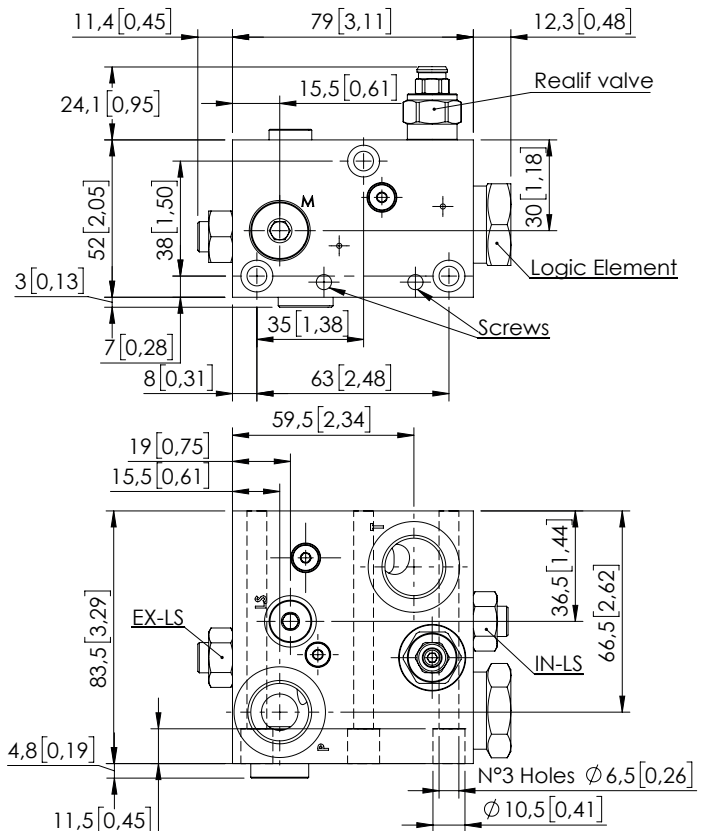
*	LOGIC ELEMENT SPRING
D	Spring setting 12 bar (174 psi) (CD000103)
N	Spring setting 6 bar (87 psi) (CD000073)

*	SETTING RANGE
N	Max setting 210 bar (3000 psi) (CP000029)
A	Max setting 110 bar (1600 psi) (CP000030)
B	Max setting 350 bar (5000 psi) (CP000002)

***	PORTS		
	P line	T line	M
G12	G 1/2"	G 1/2"	G 1/4"
U34	3/4"-16 UNF	3/4"-16 UNF	7/16"-20 UNF

QUICK CODE	
DESCRIPTION	CODE
SFLL-060-ZDNN-18-G12-N	SF000011
SFLL-060-ZNNN-18-G12-N	SF000031

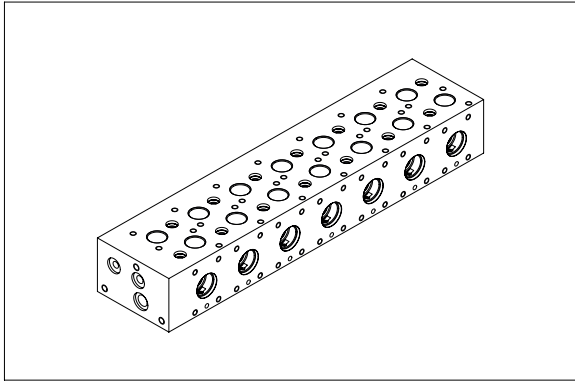
OVERALL DIMENSIONS



LDLP-060-NNNN

CAST-IRON
MANIFOLD

In LDNS/P-030-C plug are included in the manifold



The monoblock valve can be ordered with a number of spool's section from 1 to 7, each section is equipped with side mounting holes for lever option and with threaded holes at the top for flangeable modular valve. There are also two removable plugs connecting to a T line to allow to flange special blocks.

The standard version has G 3/8" ports and can be supplied with top blocks with 9/16"-18 UNF (SAE6) or M16x1,5.

The manifold is made with cast-iron and protected from corrosion with zinc-plating surface treatment.

The inlet face has 3 threaded holes to flange an inlet block that can be customized for each application, giving high flexibility to the project.

TECHNICAL DATA

Max pressure	320 bar (4600 psi)
Rated flow	60 l/min (16 gpm)
Material	Cast-iron
Surface treatment	Zinc-plated black
Weight for single section	1,9 kg (4,18 lb)
Wight for additional sections	+ 1,1 kg (2,4 lb) each

ORDERING DETAILS: SEPARATE ELEMENTS

LDL * - 060 - NNNN - ** - ***

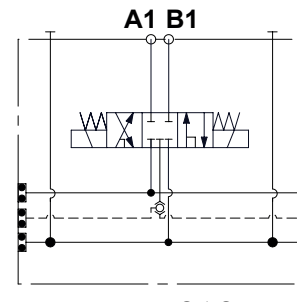
*	TYPE OF MANIFOLD
S	Series connection
P	Parallel connection

**	NUMBER OF SECTION
01	manifold with one section
02	manifold with two sections
03	manifold with three sections
04	manifold with four sections
05	manifold with five sections
06	manifold with six sections
07	manifold with seven sections

***	PORTS		
	P line	T line	M
G38	G 3/8"	G 3/8"	G 1/4"
U09	9/16"-18 UNF	9/16"-18 UNF	7/16"-20 UNF

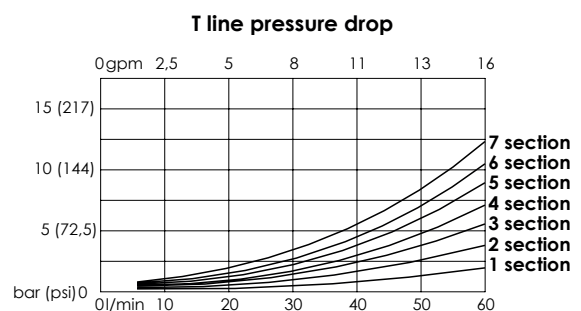
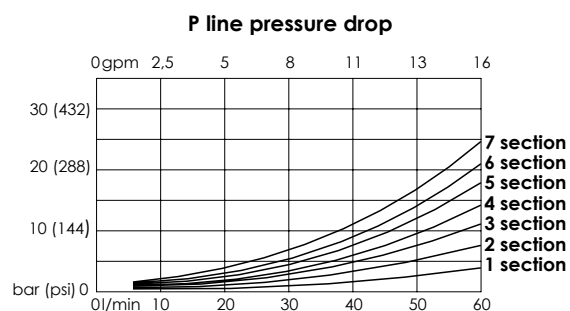
QUICK CODE	
DESCRIPTION	CODE
LDLP-060-NNNN-01-G38	LD000183
LDLP-060-NNNN-02-G38	LD000184
LDLP-060-NNNN-03-G38	LD000185
LDLP-060-NNNN-04-G38	LD000187
LDLP-060-NNNN-05-G38	LD000188
LDLP-060-NNNN-06-G38	LD000189
LDLP-060-NNNN-07-G38	LD000190

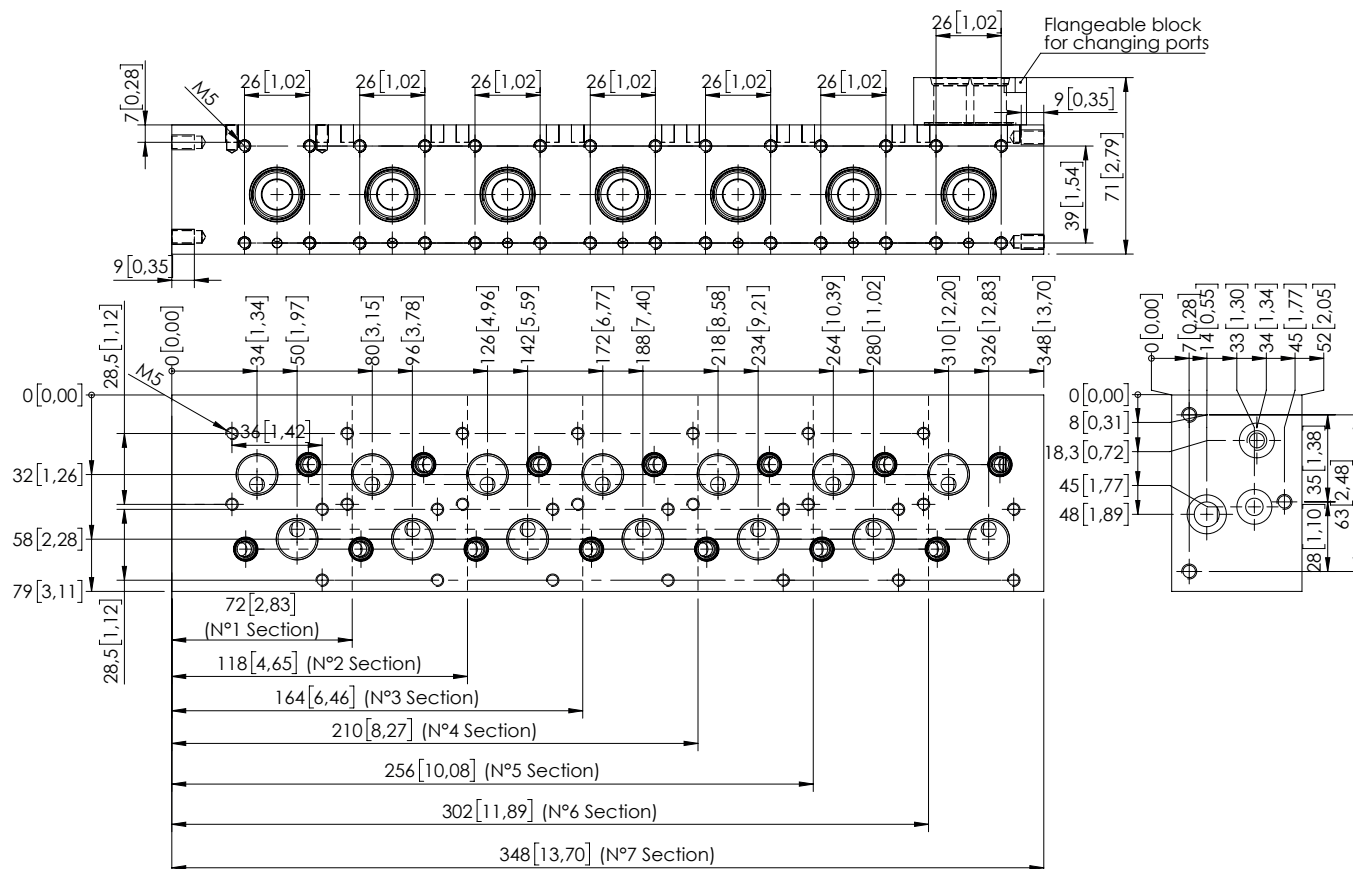
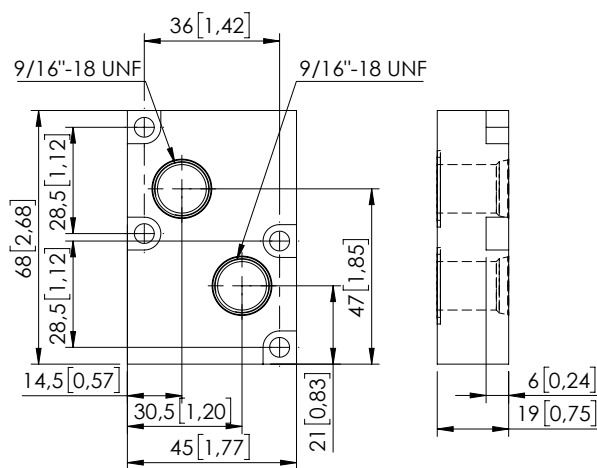
MANIFOLD CONFIGURATIONS



LDLP-060

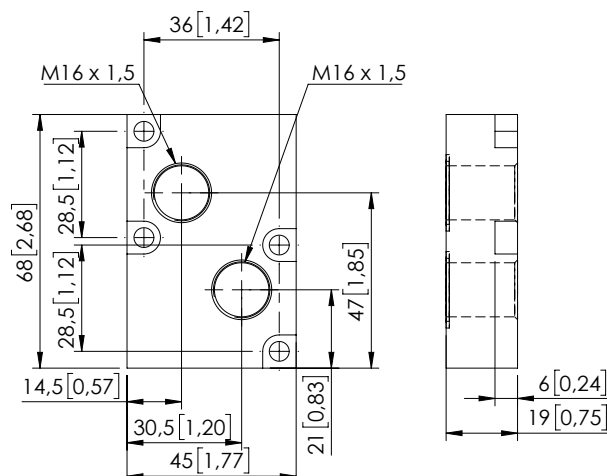
MONOBLOCK PRESSURE DROP



GAS VERSION**SAE VERSION**

This top flangeable block transform the monoblock to a UNF version.

Quick code: MP000096

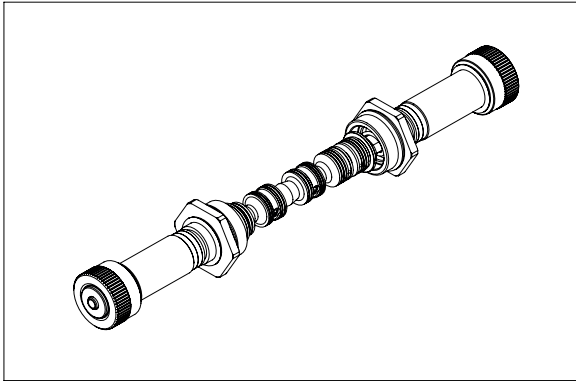
METRIC VERSION

This top flangeable block transform the monoblock to a Metric version.

Quick code: MP000097

Dimensions: mm [inches]

SHNE-030-LSON

**30 L/MIN (8 gpm)
SOLENOID VALVE**


This spool group is rated for 30 lpm (8 gpm) and for a maximum pressure of 320 bar (4600 psi); the spool is actuated by on off tubes and can be ordered with different hydraulic schemes. Each spools is interchangeable to give maximum flexibility and can be fit in all monoblock sections, changing spools require adequate training. The group is made by two tubes, one spool, two springs and mounting components.

TECHNICAL DATA

Max pressure	320 bar (4600 psi)
Rated flow	30 l/min (8 gpm)
Max excitation frequency	3 Hz
Duty cycle	100 % ED
Hydraulic fluid	Mineral oil DIN 51524
Fluid viscosity	10-500 mm ² /s (0,02-0,78 in ² /s)
Fluid temperature	-25°C/75°C (-13°F/167°F)
Enviroment temperature	-25°C/60°C (-13°F/140°F)
Weight with one solenoid	0,12 kg (0,26 lb)
Weight with two solenoid	0,15 kg (0,33 lb)

ORDERING DETAILS: SEPARATE ELEMENTS

SH - 030 - LS** - ** - 396 - * ** N**

*	VERRIDE TYPE
N	Standard
P	Push
V	Screw

*	SECTION TYPE
E	Solenoid operated
L	Solenoid operated plus lever operated
M	Lever operated

**	ACTUATION TYPE
ON	On/Off
SS	Soft shift

**	SPOOL TYPE
...	See table n°1

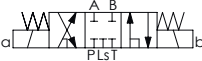
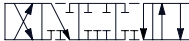


*	COILS VOLTAGE
	no coils
A	12 V DC
B	24 V DC

**	COILS TYPE
	no coils
HR	Hirschmann (ISO 4400 DIN 43650)
DT	Deutshc (DT04-2P)
AJ	Amp Junior (AJ type)

QUICK CODE	
DESCRIPTION	CODE
SHNE-030-LSON-74-396	
SHNE-030-LSON-75-396	

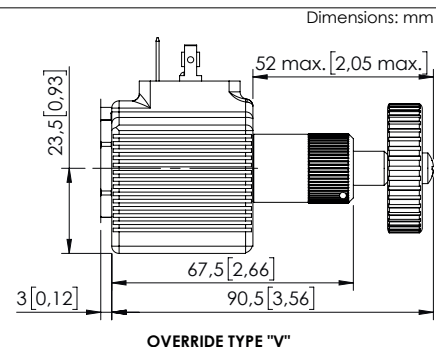
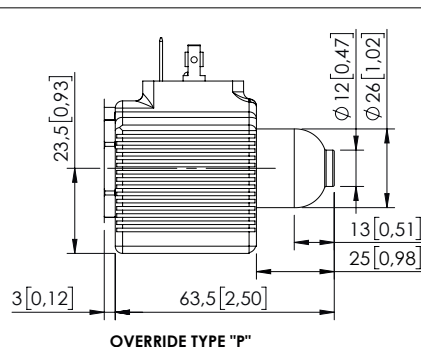
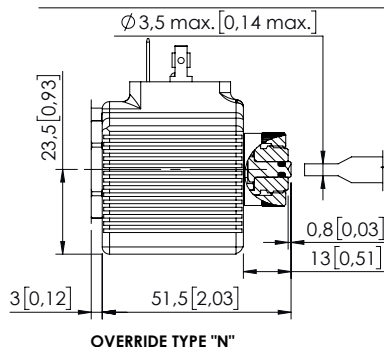
HYDRAULIC SYMBOLS

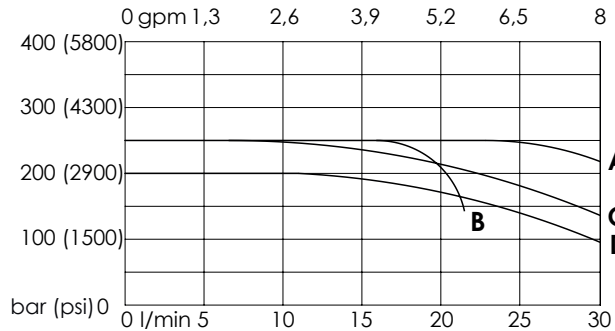
Table n°1

SPOOL CODE		HYDRAULIC SCHEME		TRANSITORY POSITION	
74					
75					
SPOOL CODE		HYDRAULIC SCHEME		TRANSITORY POSITION	
a	b	a	b	a	b

VERRIDE TYPE

Dimensions: mm [inches]



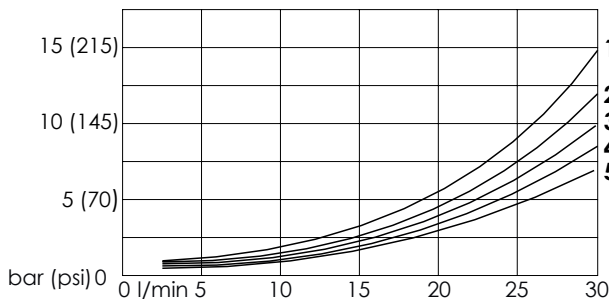
PERFORMANCE LIMITS CURVES - STANDARD SECTION

Spool type	Performance limits curve
74	A
75	A
	B
	A
	A
	A
	C
	D

The tests are carried out with hot solenoids, powered with 90 % of nominal voltage, with 50 °C (122°F) fluid temperature. The fluid used is mineral oil having a viscosity of 46 mm²/s @ 40 °C (0.07 in²/s @ 104°F).

The value in the diagram refer to test carried out with flow simultaneously in both directions (P > A, B > T).

In cases of schemes 4/2 or 4/3 used with the flow in one direction only the performance can change.

PRESSURE DROP CURVES - STANDARD SECTION

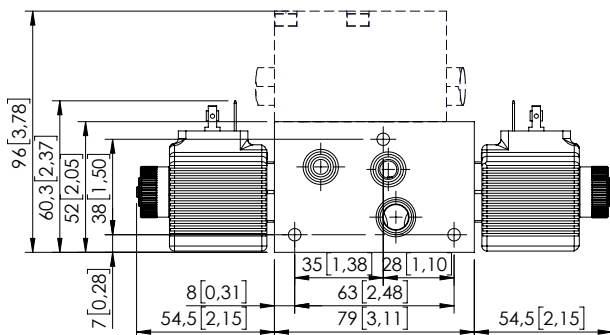
Spool type	Pressure drop curve				
	P>A	P>B	A>T	B>T	P>T
74	3	3	4	4	/
75	3	3	5	5	/
	2	2	1	1	2
	/	3	4	/	/
	/	3	5	/	/
	2	/	/	1	/
	/	3	4	/	/
	/	2	3	/	/

The diagram shows the performance limit curve of standard section. The fluid used is mineral oil viscosity 46 mm²/s at 40 °C (0.07 in²/s @ 104°F); the tests are performed at a 40 °C (104°F) temperature.

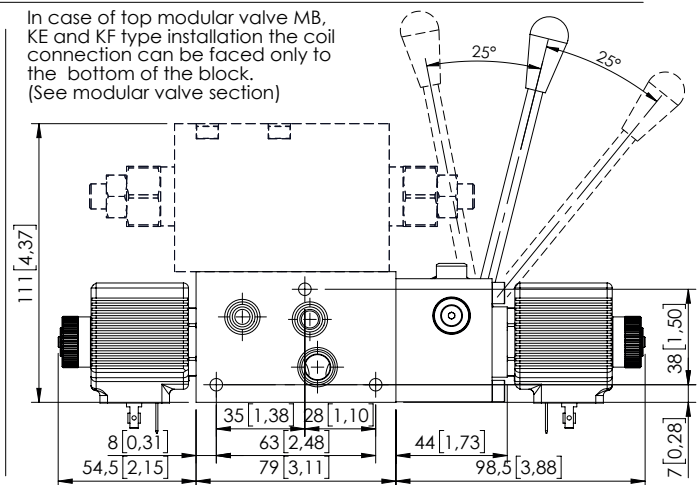
Dimensions: mm [inches]

OVERALL DIMENSION - STANDARD SECTION

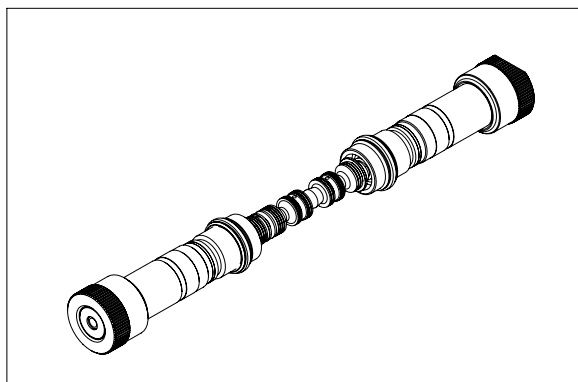
In case of top modular valve MA or MC type installation the coil connection can be faced to the top or to the bottom of the block. (See modular valve section)



In case of top modular valve MB, KE and KF type installation the coil connection can be faced only to the bottom of the block. (See modular valve section)



SHNE-060-LSON

60 L/MIN (16 gpm)
SOLENOID VALVE


This spool group is rated for 60 lpm (16 gpm) and for a maximum pressure of 320 bar (4600 psi); the spool is actuated by on off tubes and can be ordered with different hydraulic schemes.

Each spools is interchangeable to give maximum flexibility and can be fit in all monoblock sections, changing spools require adequate training.

The group is made by two tubes, one spool, two springs and mounting components.

TECHNICAL DATA

Max pressure	320 bar (4600 psi)
Rated flow	60 l/min (16 gpm)
Max excitation frequency	3 Hz
Duty cycle	100 % ED
Hydraulic fluid	Mineral oil DIN 51524
Fluid viscosity	10-500 mm ² /s (0,02-0,78 in ² /s)
Fluid temperature	-25°C/75°C (-13°F/167°F)
Enviroment temperature	-25°C/60°C (-13°F/140°F)
Weight with one solenoid	0,2 kg (0,44 lb)
Weight with two solenoid	0,4 kg (0,88 lb)

ORDERING DETAILS: SEPARATE ELEMENTS

SH * * - 060 - LS ** - ** - 396 - * * * N

*	VERRIDE TYPE
N	Standard
P	Push
V	Screw

*	SECTION TYPE
E	Solenoid operated
L	Solenoid operated plus lever operated
M	Lever operated

**	ACTUATION TYPE
ON	On/Off
SS	Soft shift

**	SPOOL TYPE
...	See table n°1

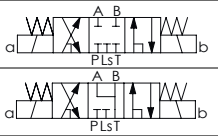
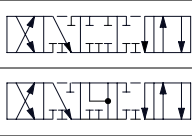
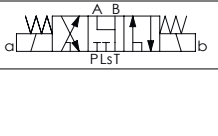
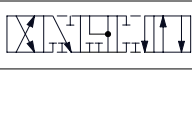
**	COILS VOLTAGE
	no coils
A	12 V DC
B	24 V DC

**	COILS TYPE
	no coils
HR	Hirschmann (ISO 4400 DIN 43650)
DT	Deutshc (DT04-2P)
AJ	Amp Junior (AJ type)

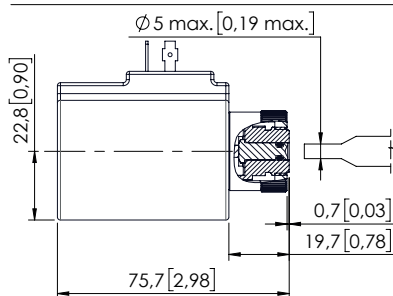
QUICK CODE	
DESCRIPTION	CODE
SHNE-060-LSON-74-396	
SHNE-060-LSON-75-396	

HYDRAULIC SYMBOLS

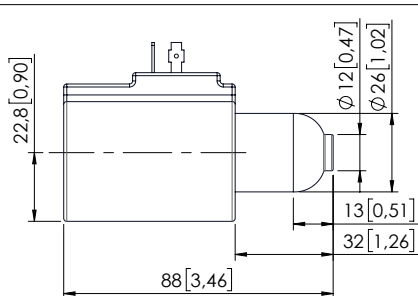
Table n°1

SPOOL CODE		HYDRAULIC SCHEME		TRANSITORY POSITION	
74					
75					
SPOOL CODE		HYDRAULIC SCHEME		TRANSITORY POSITION	
a	b	a	b	a	b

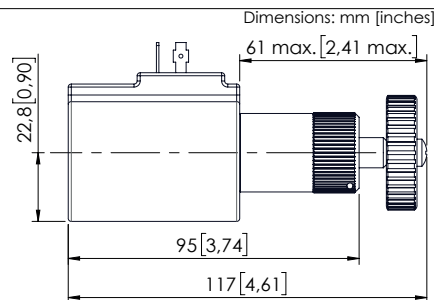
OVERRIDE TYPE



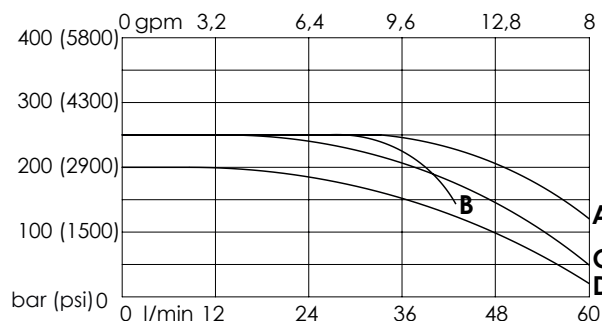
OVERRIDE TYPE "N"



OVERRIDE TYPE "P"



OVERRIDE TYPE "V"

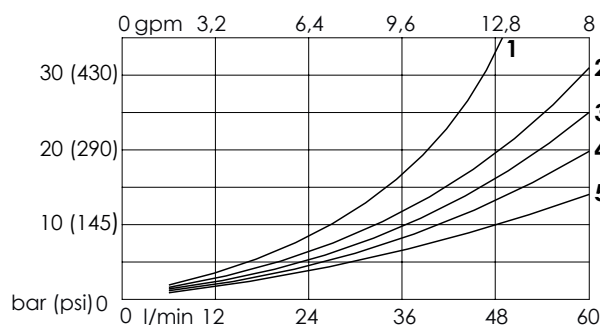
PERFORMANCE LIMIT CURVES - STANDARD SECTION

Spool type	Performance limits curve
74	A
75	A
	B
	A
	A
	A
	C
	D

The tests are carried out with hot solenoids, powered with 90 % of nominal voltage, with 50 °C (122°F) fluid temperature. The fluid used is mineral oil having a viscosity of 46 mm²/s @ 40 °C (0,07 in²/s @104°F).

The value in the diagram refer to test carried out with flow simultaneously in both directions (P > A, B > T).

In cases of schemes 4/2 or 4/3 used with the flow in one direction only the performance can change.

PRESSURE DROP CURVES - STANDARD SECTION

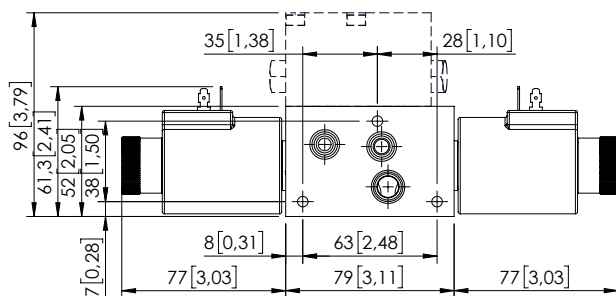
Spool type	Pressure drop curve				
	P>A	P>B	A>T	B>T	P>T
74	3	3	4	4	/
75	3	3	5	5	/
	2	2	1	1	2
	/	3	4	/	/
	/	3	5	/	/
	2	/	/	1	/
	/	3	4	/	/
	/	2	3	/	/

The diagram shows the performance limit curve of standard section. The fluid used is mineral oil viscosity 46 mm²/s at 40 °C (0,07 in²/s @104°F); the tests are performed at a 40 °C (104°F) temperature.

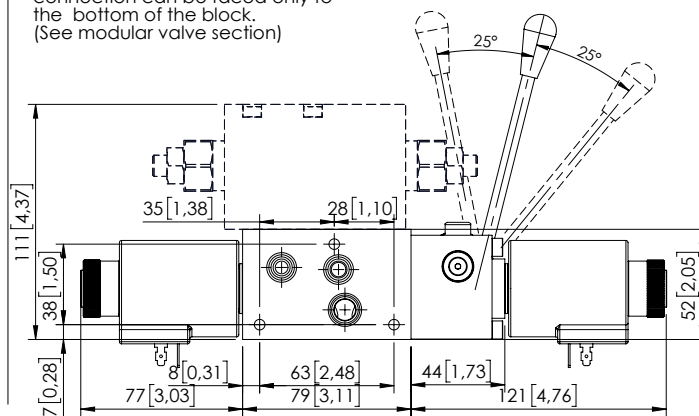
Dimensions: mm [inches]

OVERALL DIMENSION - STANDARD SECTION

In case of top modular valve MA or MC type installation the coil connection can be faced to the top or to the bottom of the block. (See modular valve section)

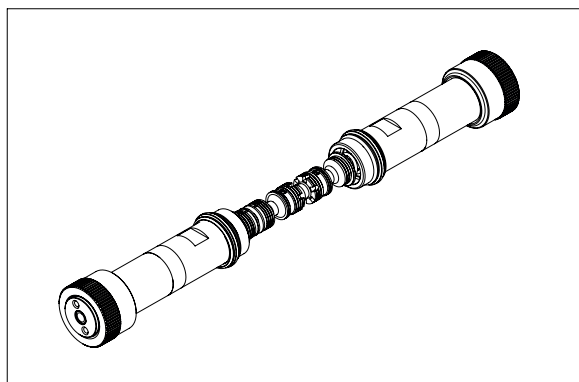


In case of top modular valve MB, KE and KF type installation the coil connection can be faced only to the bottom of the block. (See modular valve section)



SHNE-050-LSPR

50 L/MIN (13 gpm)
PROPORTIONAL
SOLENOID VALVE



This spool group is rated for 50 lpm (13 gpm) and for a maximum pressure of 320 bar (4600 psi); the spool is actuated by proportional tubes and can be ordered with different hydraulic schemes.

Each spools is interchangeable to give maximum flexibility and can be fit in all monoblock sections, changing spools require adequate training.

The group is made by two tubes, one spool, two springs and mounting components.

TECHNICAL DATA

Max pressure	320 bar (4600 psi)
Rated flow	50 l/min (13 gpm)
Max excitation frequency	3 Hz
Duty cycle	100 % ED
Max current	1.76A (12 V dc) 0.88A (24 V dc)
Hydraulic fluid	Mineral oil DIN 51524
Fluid viscosity	10-500 mm ² /s (0.02-0.78 in ² /s)
Fluid temperature	-25°C/75°C (-13°F/167°F)
Environment temperature	-25°C/60°C (-13°F/140°F)
Weight with one solenoid	0,5 kg (1,1 lb)
Weight with two solenoid	0,7 kg (1,5 lb)

ORDERING DETAILS: SEPARATE ELEMENTS

SH * * - 0 * * - LSPR - * * - 396 - * * * N

*	VERRIDE TYPE
N	Standard
P	Push
V	Screw

*	SECTION TYPE
E	Solenoid operated
L	Solenoid operated plus lever operated
M	Lever operated

**	SPOOL FLOW
20	20 l/min at 12 bar - 10 l/min at 6 bar (5 gpm at 174 psi - 2.5 gpm at 87 psi)
35	35 l/min at 12 bar - 20 l/min at 6 bar (9 gpm at 174 psi - 5 gpm at 87 psi)
50	50 l/min at 12 bar - 30 l/min at 6 bar (13 gpm at 174 psi - 8 gpm at 87 psi)

**	PROPORTIONAL TYPE
...	See table n°1

*	COILS VOLTAGE
	no coils
A	12 V DC
B	24 V DC

**	COILS TYPE
	no coils
HR	Hirschmann (ISO 4400 DIN 43650)
DT	Deutsch (DT04-2P)
AJ	Amp Junior (AJ type)

QUICK CODE	
DESCRIPTION	CODE
SHNE-030-LSPR-77-396	
SHNE-030-LSPR-78-396	

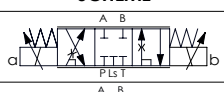

TECHNICAL FEATURES

Propor. type	Spool flow	Rated flow with 12 bar ΔP	Maximum flow	Max. operating pressure
All	20	15 l/min (4 gpm)	20 l/min (5 gpm)	320 bar (4600 psi)
All	35	30 l/min (8 gpm)	35 l/min (9 gpm)	
All	50	45 l/min (12 gpm)	50 l/min (13 gpm)	

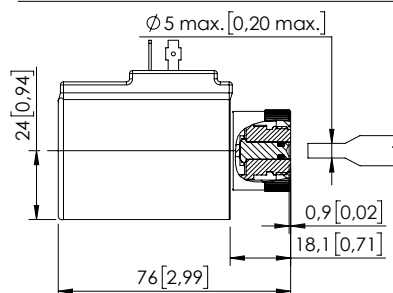
Propor. type	Spool flow	Rated flow with 6 bar ΔP	Maximum flow	Max. operating pressure
All	20	10 l/min (2,5 gpm)	15 l/min (4 gpm)	320 bar (4600 psi)
All	35	20 l/min (5 gpm)	25 l/min (6,5 gpm)	
All	50	30 l/min (8 gpm)	35 l/min (9 gpm)	

HYDRAULIC SYMBOLS

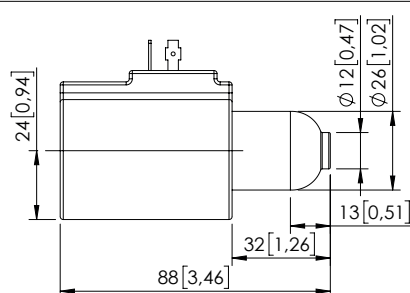
Table n°1

SPOOL CODE	HYDRAULIC SCHEME	TRANSITORY POSITION
77		
78		

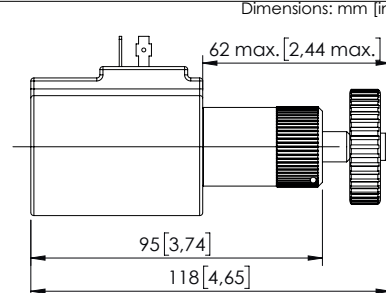
VERRIDE TYPE



VERRIDE TYPE "N"

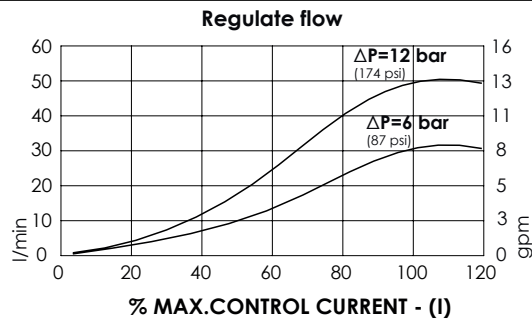
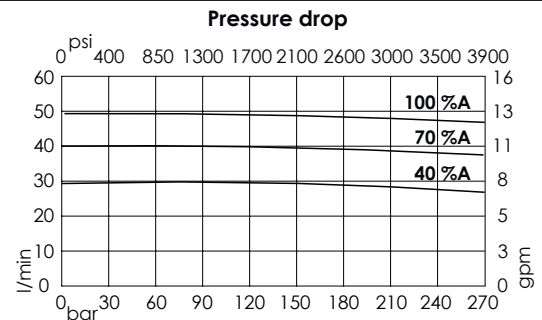
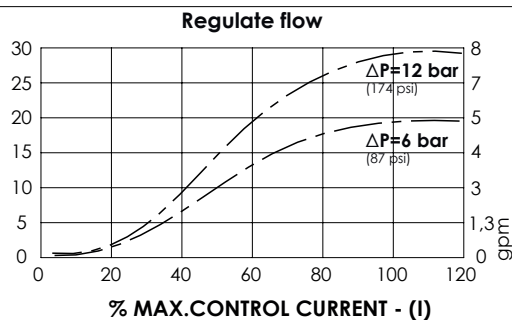
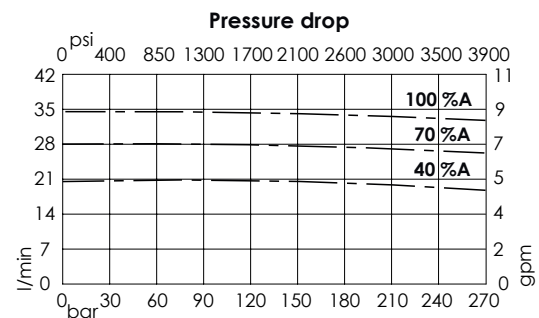
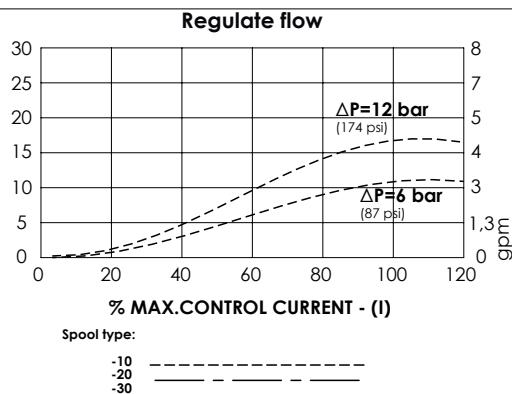
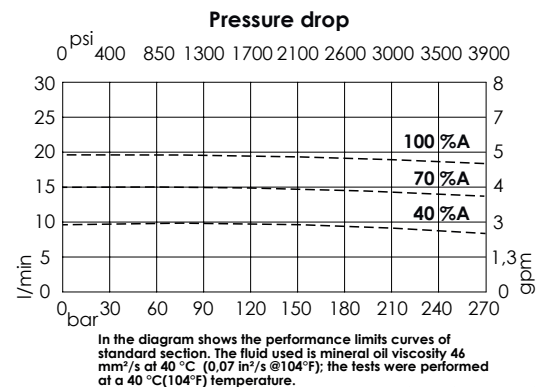


VERRIDE TYPE "P"



VERRIDE TYPE "V"

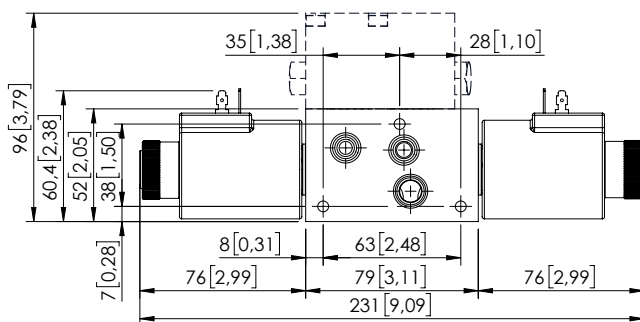
Dimensions: mm [inches]

FLOW DIAGRAM - 050**COMPESATION DIAGRAM - 050****FLOW DIAGRAM - 035****COMPENSATION DIAGRAM - 035****FLOW DIAGRAM - 020****COMPENSATION DIAGRAM - 020**

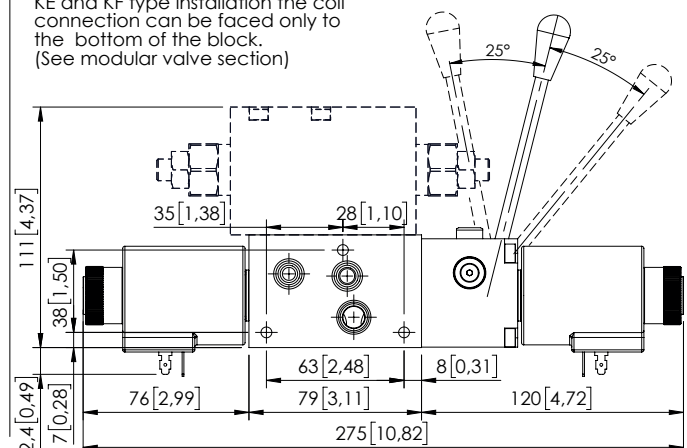
Dimensions: mm [inches]

OVERALL DIMENSION - STANDARD SECTION

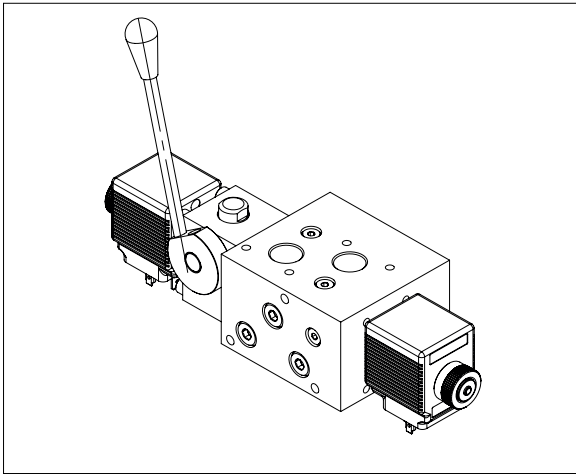
In case of top modular valve MA or MC type installation the coil connection can be faced to the top or to the bottom of the block. (See modular valve section)



In case of top modular valve MB, KE and KF type installation the coil connection can be faced only to the bottom of the block. (See modular valve section)



MANUAL LEVER



The lever option allow to operate manually the spool and can be ordered for all hydraulic schemes; in the standard version it is installed between monoblock and B port side coil.

The lever is normally installed on the monoblock port side but can be installed also rotated of 180°; in each of these two positions the lever can be mounted vertical or horizontal simply removing the lever and reinstalling.

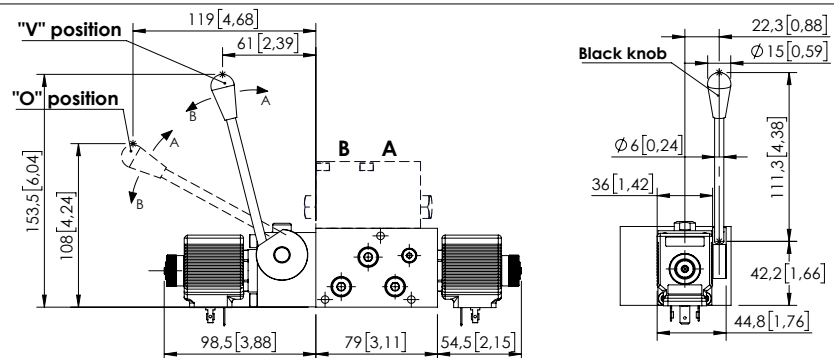
The lever is not engaged during solenoid operation and doesn't move when a coil is energized.

TECHNICAL DATA

Max pressure	210/320 bar (3000/4600 psi)
Max pressure in line type	210 bar (3000 psi)
Rated flow	30/60 l/min (8/16 gpm)
Insertion	100 % ED
Weight more than standard	2 kg (4,4 lb)
Weight more than standard	2,5 kg (5,5 lb)

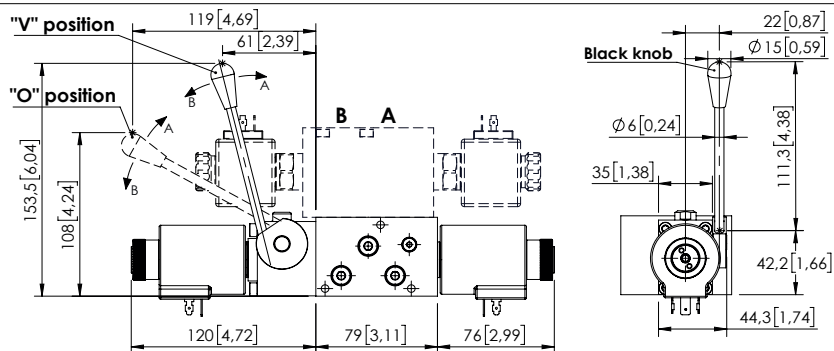
OVERALL DIMENSIONS/ LEVER FOR 30 L/MIN SECTION

The lever option is designed to activate the spool manually, when the lever is pulled the flow is delivered from the port close to the lever, when it is pushed the flow is delivered from the port opposite to the lever. The standard operation deliver full flow, in case of override operation it is possible to reduce the maximum stroke and consequently the speed, for this option contact AFT sales network. The lever can be easily positioned vertical or horizontal by unscrewing it from the rotating shaft.



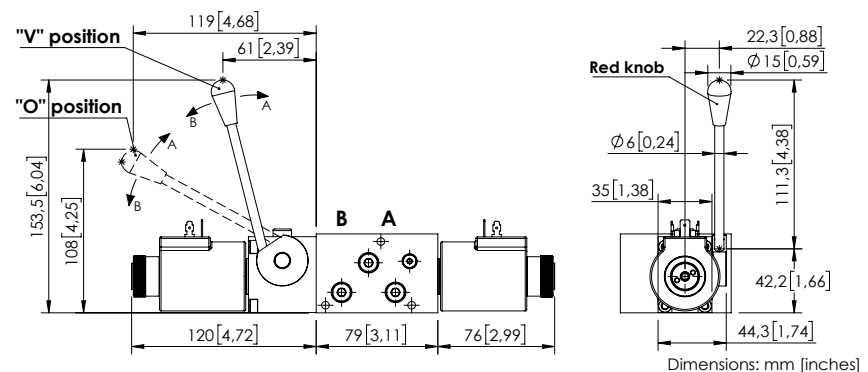
OVERALL DIMENSIONS/ LEVER FOR 60 L/MIN SECTION

The lever option is designed to activate the spool manually, when the lever is pulled the flow is delivered from the port close to the lever, when it is pushed the flow is delivered from the port opposite to the lever. The standard operation deliver full flow, in case of override operation it is possible to reduce the maximum stroke and consequently the speed, for this option contact AFT sales network. The lever can be easily positioned vertical or horizontal by unscrewing it from the rotating shaft.

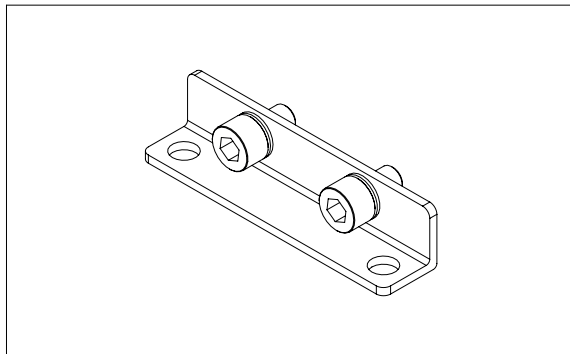


OVERALL DIMENSION/ LEVER FOR 50 L/MIN PROPORTIONAL SECTION

The lever option is designed to activate the spool manually, when the lever is pulled the flow is delivered from the port close to the lever, when it is pushed the flow is delivered from the port opposite to the lever. The standard operation deliver full flow, in case of override operation it is possible to reduce the maximum stroke and consequently the speed, for this option contact AFT sales network. The lever can be easily positioned vertical or horizontal by unscrewing it from the rotating shaft.



MOUNTING SCREW

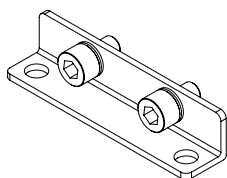


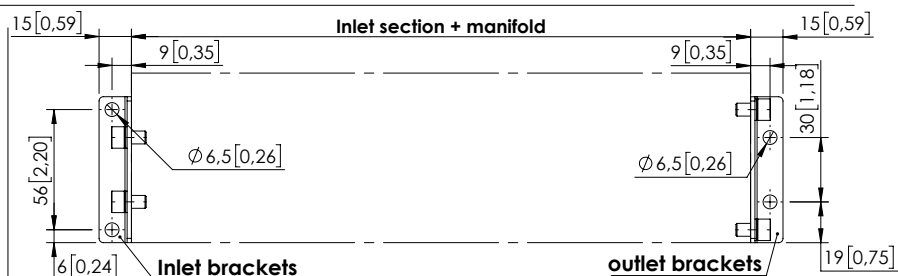
These parts are used to mount the directional valve on the application or to install modular valves and inlet section on the monoblock.

TECHNICAL DATA

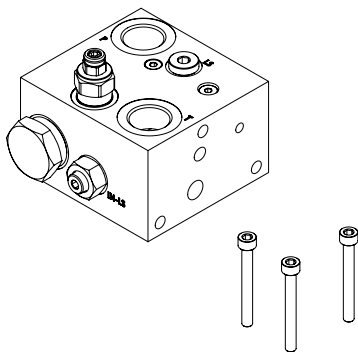
Screw type	ISO 4762
Thread type	coarse thread
Standard screw	resistance class 8.8
High resistance screw	resistance class 12.9
Standard screw treatment	zinc-plated (white)
High res. screw treatment	Anodized (black)

MOUNTING BRACKETS



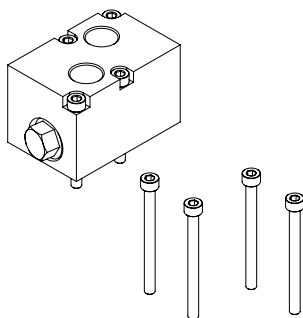
			
Mounting brackets	Screw lenght	Reference	Tightening Torque
PV000371	M6x10 [M6x0,39]	AV000015 + PR000129	6-7 N/m [4-5 ft-lb]

MOUNTING INLET SECTION



Inlet section	Screw lenght	Reference	Tightening Torque
SF000011	M6X80 [M6x3,15]	AV000073	6-7 N/m [4-5 ft-lb]
SF000019	M6X80 [M6x3,15]	AV000073	6-7 N/m [4-5 ft-lb]
SF000042	M6X75 [M6x2,95]	PE000418	6-7 N/m [4-5 ft-lb]
SF000045	M6X75 [M6x2,95]	PE000418	6-7 N/m [4-5 ft-lb]

FIXING STACKING MODULES



Flangiabe valve	Screw lenght	Reference	Tightening Torque
MP	M5x16 [M5x0,63]	AV000035	3-4 N/m [2-3 ft-lb]
MA, MC and MB	M5x45 [M5x1,77]	PE000148	3-4 N/m [2-3 ft-lb]
KE and MF	M5x60 [M5x2,36]	AV000016	3-4 N/m [2-3 ft-lb]

Dimensions: mm [inches]